Number 214 April 26, 1930

OCCASIONAL PAPERS OF THE MUSEUM OF ZOOLOGY

UNIVERSITY OF MICHIGAN

Ann Arbor, Michigan Published by the University

LEPIDOPTERA OF THE BEAVER ISLANDS

By Sherman Moore

During the summers of 1922 to 1926 inclusive, while engaged on a hydrographic survey of the surrounding waters for the United States Lake Survey, the writer was stationed at the Beaver Islands. The time spent on the islands each season extended from about the middle of May until the middle of October. This afforded an excellent opportunity for collecting insects in a comparatively inaccessible and somewhat isolated locality; the present paper is an annotated list of the Lepidoptera taken.

The Beaver group consists of nine islands lying in the northeastern end of Lake Michigan. Although politically a portion of Charlevoix County, they are much nearer physically to Emmet and Mackinac counties. Beaver Island, the largest, which gives its name to the group, is about thirteen miles long and six miles wide. The larger part of the island is an undulating plain between sixty and one hundred feet above Lake Michigan. The merchantable pine was cut many years ago, and some of the hardwood timber has been removed. Large areas on the northern end of the island have been cleared, and where the soil permits, are under cultivation, but the southern part is practically a wilderness of sandy plains, cedar swamps,

and patches of hardwood timber. There are several lakes of considerable size. Near the northwest corner there are some high sand dunes, their eastern slopes covered with hardwood forests. At the northeast corner, on the shores of a sheltered bay, is the little village of St. James, the largest settlement on the island.

Garden Island, the second in size, about five miles long by two and one half miles wide, lies about one and one half miles north of Beaver Island. This island is high and is covered largely with the original hardwood forest. It was the home of a tribe of Indians, which today are represented by two or three families. The island is dotted with their small abandoned clearings. There is a small fishing station on the east side.

About four miles east of Garden Island lies Hog Island, about three and one half miles long and a mile wide; it is low and flat, and is covered for the most part with a dense growth of cedar and balsam. Across it are several sandy ridges bearing some oak, birch, and elm; near the west side is a black ash swamp. The island is entirely uninhabited.

About two and one half miles to the northeast of Hog Island, scarcely more than a thousand feet in diameter, is Hat Island, low and sandy, and supporting a few good sized trees. It is a breeding place of the herring gull and the great blue heron. This island is the most easterly of the group, and is separated from Waugoshance Island, which is practically a part of the mainland, by twelve miles of shallow water.

West of Garden Island are Squaw and Whiskey islands, both small and low, covered with small conifers, uninhabited save for a lighthouse keeper and his assistants. Squaw Island is the most northerly of the group, and lies only ten miles from Point Patterson, the nearest point on the Northern Peninsula.

Four miles west of Beaver Island is High Island. It is about three and one half miles long and two miles wide. On the west side are sand dunes reaching to a height of more than two hundred feet above Lake Michigan. Practically all of the

merchantable timber has been cut, most of the hardwood in recent years, and considerable areas have been cleared and are under cultivation. Near the northeast corner there is a good dock, a saw mill, and a settlement composed of a colony of the Israelitish House of David, numbering about fifty people, and eight or ten families of Indians. Trout Island lies about one mile distant, just north of the west end of High Island. It is small and low, with a dense cover of balsam, cedar, and birch.

Gull Island is the top of an isolated ridge six and one half miles west of High Island. It is small, sandy, with some scattering trees, and an impenetrable growth of ground hemlock. A large colony of herring gulls and innumerable rabbits make this isolated island their home.

The climate of these islands, lying in latitude 45°–45′, is northern. The effect of the surrounding water appears to be slight, and the temperatures are about the same as on the adjacent mainland. The precipitation averages slightly more than on the shore to the north, and materially more than on the region to the southeast. July is usually the only month without frost. While the air is frequently hot during the day time, it almost invariably cools after sunset. The islands lie in a well marked storm path, which extends from the Green Bay region northeasterly into Canada, and high winds are of frequent occurrence. The insect season is short, especially so for Lepidoptera, extending only from about the first of June to the middle of September.

A little collecting was done on Garden and Hog islands in 1919 and 1920, but none of it at night. The only moths taken were those flushed from the bushes, found resting on the tree trunks, or the few stragglers that ventured over the water to the lights of the Survey steamer as she lay at anchor half a mile or more off shore. During 1922 and 1923 collecting was largely confined to High Island. Some night collecting was done at intervals through each summer. All of the smaller islands were visited occasionally as opportunity offered.

During 1924, 1925, and 1926, collecting was carried on intensively on Beaver Island. Practically every suitable evening was utilized, and many days were spent in the woods. Very little work was done on the southern part of the island, largely because of the difficulty of transportation. A few evenings were spent in the hardwood area along the base of the sand dunes on the northwest corner of the island, but almost all of the night collecting was done within a mile of St. James. The country there is a flat sandy plain across which runs a ridge of low sand hills. The plain is covered with a scattering growth of red oak and white pine, trees of large diameter, but too low and spreading to be of value as lumber. The undergrowth is scanty, for the most part small poplar and juniper. Along the base of the sand ridge and extending up its sides is a fringe of maple, beech, and birch, mixed with the usual oak, pine, and poplar. To the south of the village the woods contain considerable balsam and hemlock.

Of the 366 species of moths, excluding the Tineoidea, listed in this paper, 314 species were taken on Beaver Island. Of these more than 300 species came from the apparently unpromising country around St. James. It is believed that this number would be considerably increased by further collecting. It is a significant fact that during the third and last season of intensive collecting, 78 species were taken which had been secured in neither of the preceding years.

The majority of the moths were taken at light. A sheet about six feet square and an incandescent gasoline lantern were used. Experience showed that the best results were obtained with the light at the top of a hill, or on the edge of a bank, probably because of the greater area of illumination. Another interesting fact was noted. Moths almost invariably travel against a breeze, and for best results the sheet should be placed so that any wind will strike it from behind. Sugar was tried repeatedly, but with slight success.

It is probable that the Beaver Islands have not been connected with the mainland since the last glacial epoch. They have been lifted above the water by the rise of the land follow-

ing the retreat of the Wisconsin ice sheet. Their fauna must therefore have crossed the water from the mainland in comparatively recent times. In the case of winged insects like the Lepidoptera, the water gap was probably but a slight barrier. The distance from Point Patterson to Squaw Island is but ten miles, from Hat Island to Waugoshance Island but twelve miles. A third possible route exists to the south by way of the Fox Islands, but this includes a gap of seventeen miles. It is highly probable that some species have crossed from the mainland directly to Beaver Island, the distance being about twenty miles, and it is not unreasonable to suppose that individuals cross between the mainland and the islands every year. It would be interesting to compare the Lepidoptera of the islands with those of the adjacent main shores, but this is impossible at the present time because of lack of data. The species found on the islands have a marked northern affinity, and probably the greater part of the immigration has been from the Northern Peninsula, the insects being carried across the water by the frequent high northwest winds. Easterly winds, which would carry them from the Southern Peninsula, are of rare occurrence during the summer months.

That the water barrier has been impassable for some species is indicated by the absence of certain butterflies which are very plentiful on the mainland. Neither *Eurymus interior* nor *Cocceius pylades* have been found on the islands, although especial search has been made for them. *Argynnis atlantis* is represented by a single specimen. *Everes comyntas* does not appear in the list, but may have been overlooked. Several specimens of *Carterocephalus palaemon* were taken on Hog Island. The only other locality in Michigan where this species has been found, so far as is known, is on the Northern Peninsula nearly opposite Hog Island.

Of the moths with wingless females, *Alsophila pometaria* was not observed on the islands, although it was plentiful on the mainland. Of *Notolophus antiqua,* which is very abundant in the Northern Peninsula, but two larvae were found, both

close to St. James. *Haemerocampa leucostigma,* which is much less common than *N. antiqua* on the Northern Peninsula, was abundant on High Island, less so around St. James. These species have probably been imported on nursery stock.

The majority of the determinations have been made by the author from descriptions only. Very little well determined material was available for comparison. In the Museum of Zoology at Ann Arbor there is a small collection of Lepidoptera from Whitefish Point, Michigan, which contains some Noctuidae determined by F. H. Wooley-Dod, a few Geometridae determined by Louis W. Swett, and some Tineoidea determined by Annette F. Braun. The recently purchased Ramstadt collection contains specimens determined by J. B. Smith, and H. G. Dyar, but the majority of them are western. Some of the more troublesome Beaver Island material was very kindly determined by W. T. M. Forbes, and for the determination of the species of the genus *Eupithecia* the author is indebted to Louis W. Swett, who worked over all of the material of this genus with some interesting results.

There remain in the collection thirteen species of Macro-Lepidoptera which are as yet undetermined. The majority of these are obscurely marked Noctuids, represented by single specimens more or less badly rubbed. There is, however, a single specimen of beautiful buff and white *Euxoa* which may be undescribed. It appears to be none of J. B. Smith's species, and is not described by Hampson. Mr. Forbes says he has never seen anything like it. In the Tineoidea considerably more than one half the species collected are undetermined. There has been but little material for comparison, and I have hesitated to name specimens from descriptions only, unless they presented unmistakable characteristics. The Pterophoridae, the Aegeriidae, the Cossidae, and the Hepialidae are practically completely named. Certain sub-families of the Pryalidae, including the Crambinae, are also nearly all determined, but in the other families only an occasional specimen has been determined. No attempt was made to collect the smallest forms.

The nomenclature is that of the Check List of Barnes and McDunnough, 1917. The following list gives the serial number, the name of the species, the islands upon which it was taken, and the earliest and latest date upon which the species was taken on any island. In the case of specimens reared from larvae and overwintering no date is given. The authority for the determination, if other than the author, is named, with any facts that might be of interest.

List of Species

PAPILIONIDAE

1. *Papilio glaucus* Linn. High, Beaver. June 20–30.

PIERIDAE

2. *Pieris napi oleracea* Harris. Garden, Hog. May 26–June 16.

napi cruciferarum Bdv. Squaw, Garden, High, Beaver. June 4–August 4.

3. *Pieris rapae* Linn. High, Garden, Beaver. May 29–Sept. 1.

rapae immaculata Ckll. Beaver. May 29.

4. *Eurymus philodice* Godt. High, Garden, Beaver. May 29–Oct. 1.

5. *Eurema lisa* Bdv. Garden, Hog, Squaw. July 15–Aug. 15.

DANAIDAE

6. *Danaus archippus* Fabr. Squaw, Garden, High, Beaver. August 3–Sept. 9.

SATYRIDAE

7. *Satyrodes canthus* Linn. Beaver. July 10–August 12.

8. *Coenonympha inornata* Edw. High. July 17.

9. *Cercyonis alope nephele* Kirby. Garden, High, Beaver. July 10–August 22.

NYMPHALIDAE

10. *Argynnis cybele* Fabr. Garden, Beaver. July.

11. *Argynnis aphrodite* Fabr. Hog, Garden, High. July.

12. *Argynnis atlantis* Edw. Beaver. August 2.

13. *Brenthis myrina* Cram. Garden, Hog, High, Beaver. June 15–August 20.

14. *Phyciodes nycteis* Dbldy. & Hew. High. June 14–20.

15. *Phyciodes tharos* Dru. Garden, Hog, High, Beaver. June–August.

16. *Polygonia comma* Harris. Garden. July 8.

17. *Polygonia faunus* Edw. Squaw. July 20.

18. *Polygonia progne* Cram. High, Beaver. July 11–Sept. 25.

19. *Aglais j-album* Bdv. & Lec. Squaw, Garden, Beaver. August 10–25.

20. *Aglais milberti* Godt. Squaw, High. June 20–July 15.

21. *Aglais antiopa* Linn. High, Beaver. June 22–Oct. 20.

22. *Vanessa atalanta* Linn. Garden, High, Beaver. June 18–August 5.

23. *Vanessa virginiensis* Dru. Gull, High, Beaver. June 22–July 30.

24. *Vanessa cardui* Linn. Hog, High. May 24, Sept. 17.

25. *Junonia coenia* Hbn. Garden. Sept. 11. Very plentiful on this one day, on stony beach.

26. *Basilarchia arthemis* Dru. Garden, High, Beaver. June 25–July 24. Form *proserpina* Edw. occurs not infrequently.

27. *Basilarchia archippus* Cram. Hog. August.

LYCAENIDAE

28. *Strymon melinus* Hbn. Squaw. July 29. One only.

29. *Strymon calanus* Hbn. High, Beaver. June 20–July 26.

30. *Strymon liparops strigosa* Harris. High. July 27.

31. *Incisalia augustus* Kirby. Garden. May 15–30.

32. *Heodes thoe* Bdv. High. June 28.

33. *Heodes helloides* Bdv. High. June 28–August 24.

34. *Heodes hypophlaeas* Bdv. High, Beaver. May 21–Aug. 22.

35. *Plebeius saepiolus* Bdv. Garden, Hog, High. June 18–July 10.

36. *Lycaenopsis pseudargiolus* Bdv. & Lec. High, Garden, Beaver. May 15–Aug. 2.

HESPERIIDAE

37. *Thanaos icelus* Lint. Garden, High, Beaver. May 27–June 27.

38. *Carterocephalus palaemon* Pall. Hog. June 18.

39. *Ancyloxypha numitor* Fabr. Hog. July 13.

40. *Pamphila comma manitoba* Scud. Garden, Hog, High. July 20–August 22.

41. *Pamphila sassacus* Harris. Beaver. June 18.

42. *Polites cernes* Bdv. & Lec. High, Garden. June 17–July 13.

43. *Poanes hobomok* Harris. Whiskey, Hog, Garden, Beaver. June 2–30.

44. *Euphyes vestris* Bdv. Garden, Beaver. July 1–15.

45. *Amblycirtes vialis* Edw. Garden, Hog. June.

SPHINGIDAE

46. *Ceratomia amyntor* Hbn. Beaver. July 17.

47. *Ceratomia undulosa* Wlk. Hog, Garden. June 27–Aug. 3.

48. *Sphinx chersis* Hbn. Hog. July 21–Aug. 23.

49. *Sphinx kalmiae* A. & S. Beaver. Aug. 6.

50. *Lapara bombycoides* Wlk. High, Beaver. June 17–July 31. Reared from larva on white pine.

51. *Smerinthus jamaicensis geminatus* Say. Beaver. June 16–28. The most common hawkmoth on the islands.

52. *Smerinthus cerisyi* Kirby. Beaver. June 15–July 20.

53. *Paonias excaecata* A. & S. Gull, Beaver. June 15–July 17. Reared from larva on apple.

54. *Cressonia juglandis* A. & S. Beaver. June 16–July 15.

55. *Pachysphinx modesta* Harris. Beaver. July 9–Aug. 5.

56. *Haemorrhagia thysbe* Fabr. High. July 24.

57. *Haemorrhagia diffinis* Bdv. High. June 2.

SATURNIIDAE

58. *Tropaea luna* Linn. High, Beaver. June 1–July 2.

59. *Telea polyphemus* Cram. Gull, High, Beaver. June 17–July 20.

CERATOCAMPIDAE

60. *Anisota rubicunda* Fabr. Squaw, High, Beaver. June 24–July 29.

SYNTOMIDAE

61. *Scepsis fulvicollis* Hbn. Beaver. July 10–11.

62. *Ctenucha virginica* Charp. Garden, High, Beaver. June 26–July 24.

ARCTIIDAE

63. *Lexis bicolor* Grt. Beaver. Aug. 5–26. Beaten from the branches of white pine.

64. *Crambidia casta* Sanb. Beaver. August 25–Sept. 5.

65. *Clemensia albata* Pack. Garden, Beaver. August 3–6.

66. *Hypoprepia miniata* Kirby. Hog, High, Beaver. July 26–August 26.

67. *Hypoprepia fucosa* Hbn. Beaver. July 22–Aug. 9.

68. *Ammalo tenera* Hbn. High. July 20.

69. *Halisidota maculata* Harris. High, Beaver. June 18–July 16.

70. *Halisidota tessellaris* A. & S. High, Beaver. July 10–August 3.

71. *Eubaphe laeta* Guer. Beaver. July 8–15.

72. *Eubaphe aurantiaca* Hbn. Gull, High, Beaver. July 12–August 6.

73. *Diacrisia virginica* Fabr. Gull, Whiskey, High, Beaver. June 6–August 6. Reared from larva on iris, elderberry, and *Polygonum* sp.

74. *Isia isabella* A. & S. Beaver. July 10.

75. *Hyphantria textor* Harris. Gull, Garden, High, Beaver. June 19–August 5. Reared from larva on cherry.

76. *Apantesis parthenice* Kirby. Beaver Aug. 2–Sept. 3.

77. *Apantesis phyllira* Dru. Beaver. Aug. 4–26.

78. *Euchaetias egle* Dru. High. Reared from larva on dogbane.

79. *Arctia caja americana* Harris. Beaver. Aug. 12.

80. *Utetheisa bella* Linn. Squaw, Hog, High, Beaver. July 27–August 18.

81. *Haploa confusa* Lyman. Beaver. July 28–Aug. 6.

AGARISTIDAE

82. *Alypia octomaculata* Fabr. High, Garden. June 4–July 7.

83. *Alypia langtoni* Couper. High. June 23–27.

NOCTUIDAE

84. *Heliothis obsoleta* Fabr. Beaver. Sept. 10–29.

85. *Rhodophora florida* Gn. High. Aug. 10.

86. *Lygranthoecia marginata* Haw. High. Aug. 24.

87. *Porosagrotis vetusta* Wlk. High, Beaver. Aug. 4–Sept. 10.

88. *Euxoa catenula* Grt. Determined by Forbes. High, Beaver. Aug. 4–Sept. 10.

89. *Euxoa detersa* Wlk. Determination checked by Forbes. Hog, High, Beaver. Aug. 6–Sept. 16. Practically all shades of color from a clay yellow to almost black are represented in the specimens.

90. *Euxoa messoria* Harris. High, Beaver. Aug. 9–29.

91. *Euxoa tessellata* Harris. Determined by Forbes. Beaver. July 8–Sept. 3.

92. *Euxoa divergens* Wlk. Beaver. June 18–Aug. 20.

93. *Euxoa redimicula* Morr. Beaver. July 16–23.

94. *Euxoa ochrogaster insignata* Wlk. Determined by Forbes. Beaver. Aug. 6.

95. *Euxoa excellens* Grt. Beaver. Aug. 6–21. Three specimens. Compared with specimen from Washington determined by Dyar.

96. *Feltia gladiaria* Morr. Beaver. Sept. 9. The specimen is not typical, but apparently belongs here.

97. *Feltia venerabilis* Wlk. Beaver. June 15.

98. *Feltia ducens* Wlk. High, Beaver. Aug. 10–Sept. 9.

99. *Feltia subgothica* Haw. Beaver. Aug. 3–20.

100. *Feltia herilis* Grt. Beaver. Aug. 2.

101. *Agrotis geniculata* G. & R. High, Beaver. Aug. 2–Sept. 5. Very abundant at light.

102. *Agrotis ypsilon* Rott. High, Beaver. Aug. 6–Sept. 5.

103. *Agrotis c-nigrum* Linn. High, Beaver. June 18–Aug. 29.

104. *Agrotis bicarnea* Gn. Beaver. Aug. 2–13.

105. *Agrotis treati* Grt. Beaver. July 23. The application of this name appears to be in doubt. The specimens that I have placed here are close to *bicarnea*, and agree well with Grote's description.

106. *Agrotis normaniana* Grt. High, Beaver. Aug. 10–21.

107. *Agrotis baja* Fabr. Beaver. July 16–Aug. 26.

108. *Agrotis plecta* Linn. Beaver. July 14–Aug. 6.

109. *Agrotis rubifera* Grt. Beaver. July 14–Sept. 19.

110. *Agrotis jucunda* Wlk. Beaver. July 16–Aug. 3. Determined by Forbes.

111. *Agrotis phyllophora* Grt. Beaver. July 14–Aug. 3.

112. *Agrotis fennica* Tausch. Beaver. June 26–Sept. 3.

113. *Agrotis unimacula* Morr. High, Beaver. July 16–Aug. 20.

114. *Agrotis unicolor* Wlk. High, Beaver. June 27–Aug. 24.

115. *Epipsilia littoralis* Pack. High, Beaver. June 25–July 8.

116. *Lycophotia scandens* Riley. High, Beaver. July 8–Aug. 12.

117. *Lycophotia occulta* Linn. Beaver. July 14.

118. *Lycophotia margaritosa* Haw. High, Beaver. June 25–Sept. 25.

119. *Aplectoides pressus* Grt. Beaver. July 28–Aug. 30.

120. *Matuta elimata* Gn. Beaver. July 10–Aug. 20.

Matuta elimata dilucinda Morr. Beaver. Sept. 8. Determined by Forbes. A single specimen of this form which is listed as a geographic race.

121. *Matuta prasina* Fabr. Beaver. Aug. 3–Sept. 3.

122. *Rhynchagrotis alternata* Grt. Beaver. Sept. 6.

123. *Rhynchagrotis anchocelioides* Gn. High, Beaver. Aug. 5–Sept. 10.

124. *Rhynchagrotis gilvipennis* Grt. Beaver. Aug. 2–6.

125. *Euretagrotis perattenta* Grt. Beaver. June 25–Aug. 3.

126. *Polia detracta* Wlk. High, Beaver. July 3–Aug. 3.

127. *Polia imbrifera* Gn. Beaver. July 30–Aug. 5.

128. *Polia purpurissata* Grt. Beaver. Aug. 12–26.

129. *Polia meditata* Grt. Beaver. Aug. 11–26.

130. *Polia grandis* Bdv. Beaver. June 18.

131. *Polia lubens* Grt. Beaver. June 24–July 8.

132. *Polia latex* Gn. Beaver. June 18–July 23.

133. *Polia adjuncta* Bdv. High. Reared from larva on red dogwood (*Cornus stolonifera*).

134. *Polia atlantica* Grt. Beaver. July 9.

135. *Polia obscura* Smith. Beaver. July 8.

136. *Polia assimilis* Morr. Beaver. June 15–July 16.

137. *Polia anguina* Grt. Beaver. June 15–July 8. Determination a little doubtful.

138. *Polia vicina* Grt. Beaver. July 23–Aug. 12.

139. *Polia renigera* Steph. High, Beaver. June 20–Aug. 25.

140. *Polia lorea* Gn. High, Beaver. June 18–July 16.

141. *Polia olivacea* Morr. High, Beaver. Aug. 6–Sept. 9.

142. *Epia capsularis* Gn. Beaver. July 1.

143. *Chabuata signata* Wlk. Beaver. July 8–Aug. 6.

144. *Hyssia modesta* Morr. Beaver. June 4–15. Determined by Forbes.

145. *Eriopyga oviduca* Gn. High, Beaver. June 18–Sept. 7.

146. *Eriopyga crenulata* Butl. Beaver. Aug. 3.

147. *Eriopyga cynica* Gn. Beaver. June 18–July 16.

148. *Eriopyga furfurata* Grt. Beaver. July 28.

149. *Nephelodes emmedonia* Cram. High, Beaver. Aug. 21–Sept. 9.

150. *Cirphis pseudargyria* Gn. Beaver. One from pupa.
151. *Cirphis multilinea* Wlk. Beaver. July 16–Aug. 6.
152. *Cirphis commoides* Gn. Beaver. July 8–30.
153. *Cirphis insueta* Gn. Beaver. June 15–30.
154. *Cirphis unipuncta* Haw. Hog, High, Beaver. May 24–Aug. 24.
155. *Neleucania albilinea* Hbn. High, Beaver. June 16–Aug. 10.
156. *Leucania luteopallens* Sm. Beaver. July 7–Aug. 6.
157. *Oncocnemis riparia* Morr. High. June 28–July 24.
158. *Hillia algens* Grt. High. Sept. 6.
159. *Xylotype capax* G. & R. High. Sept. 14.
160. *Parastichtis bicolorago ferrugineoides* Gn. Beaver. Oct. 2.
161. *Atethmia pampina* Gn. Beaver. Aug. 21–Oct. 2.
162. *Xanthia lutea* Strom. Hog, Beaver. Sept. 14–15.
163. *Amphipyra pyramidoides* Gn. High, Beaver. Aug. 23–Sept. 6.
164. *Septis verbascoides* Gn. Beaver. Aug. 6.
165. *Septis lignicolora* Gn. Beaver. July 14–Aug. 6.
166. *Septis vultuosa* Grt. Beaver. July 14.
167. *Septis arctica* Bdv. Beaver. June 18–Aug. 21.
168. *Trachea indocilis* Wlk. High, Beaver. July 15–16.
169. *Trachea mactata* Gn. High. Aug. 24–Sept. 13.
170. *Trachea modica* Gn. Beaver. July 29–Aug. 20.
171. *Euplexia lucipara* Linn. Beaver. July 1–16.
172. *Oligia diversicolor* Morr. Beaver. Oct. 2.
173. *Agroperina dubitans* Wlk. High. Aug. 29.
174. *Agroperina lateritia* Hufn. High, Beaver. June 25–July 13.
175. *Macronoctua onusta* Grt. Beaver. Sept. 10.
176. *Sidemia devastator* Brace. High, Beaver. July 8–Aug. 16.
177. *Luperina passer* Gn. High. July 6.
178. *Phlogophora iris* Gn. Beaver. June 18–July 15.
179. *Chutapha periculosa* Gn. Beaver. Aug. 2–19.

180. *Callopistria monetifera* Gn. Beaver. June 30–Aug. 5.

181. *Chytonix palliatricula* Gn. Beaver. July 10–Aug. 6.

182. *Harrisimemna trisignata* Wlk. Beaver. July 28.

183. *Leuconycta diphteroides* Gn. Beaver. July 1.

184. *Acronycta fragilis* Gn. Weaver. July 1–14.

185. *Acronycta noctivaga* Grt. Beaver. June 19. One specimen, rubbed, and a little uncertain.

186. *Acronycta afflicta* Grt. Beaver. July 8–17. Some doubt in regard to the determination.

187. *Acronycta hamamelis* Gn. Beaver. June 16–Aug. 2.

188. *Acronycta impleta* Wlk. Beaver. July 1.

189. *Acronycta quadrata* Grt. Beaver. June 30. Reared from larvae on apple.

190. *Acronycta grisea* Wlk. Beaver. Reared from larvae on alder.

191. *Acronycta populi* Riley. Beaver. July 8–17. Reared from larvae on *Populus balsamifera.* One of the reared specimens is so covered with dark atoms as to appear blue-gray.

192. *Acronycta innotata* Gn. Beaver. July 15–Aug. 5.

193. *Acronycta americana* Harris. Beaver. One from pupa.

194. *Acronycta dactylina* A. & S. High. Known only from the larvae which were very plentiful in 1923.

195. *Acronycta impressa* Wlk. Beaver. Aug. 21. Reared from larvae on iris.

196. *Acronycta oblinita* A. & S. Beaver. July 8–Aug. 5. Reared from larvae on iris and willow.

197. *Delta ramosula* Gn. Beaver. Aug. 18.

198. *Hyppa xylinoides* Gn. High, Beaver. Aug. 2–Sept. 3.

199. *Laphygma frugiperda* A. & S. Beaver. Sept. 17.

200. *Caradrina multifera* Wlk. High, Beaver. Aug. 23–31.

201. *Proxenus miranda* Grt. High, Beaver. June 9–Sept. 7.

202. *Balsa malana* Fitch. Beaver. Reared from larvae on apple.

203. *Monodes versicolor* Grt. Beaver. July 14.

204. *Monodes festivoides* Gn. High, Beaver. June 1–July 28.

205. *Helotropha reniformis* Grt. Beaver. Aug. 25–Oct. 2.

206. *Apamea velata* Wlk. Beaver. Aug. 20.

207. *Apamea nictitans americana* Speyer. Beaver. August.

208. *Pyrrhia umbra* Hufn. High, Beaver. June 29–Aug. 2.

209. *Papaipema purpurifascia* G. & R. Beaver. Oct. 12.

210. *Papaipema aweme* Lyman. Beaver. Aug. 13. Determined by Forbes.

211. *Ogdoconta cinereola* Gn. High, Beaver. June 19–July 20.

212. *Ipimorpha pleonectusa* Grt. Beaver. July 30– Sept. 10.

213. *Enargia decolor* Wlk. High, Beaver. Aug. 18–Sept. 15.

214. *Calamia variana* Morr. Beaver. Aug. 2.

215. *Lithacodia synochitis* G. & R. Beaver. Aug. 5.

216. *Lithacodia albidula* Gn. High. June 27.

217. *Lithacodia carneola* Gn. High, Beaver. July 20–Aug. 8.

218. *Lithacodia muscosula* Gn. Beaver. July 23–Sept. 10.

219. *Catocala antinympha* Hbn. Garden. July 21.

220. *Catocala ilia* Cram. Beaver. Aug. 20.

221. *Catocala relicta* Wlk. Beaver. Aug. 23–Sept. 5.

222. *Catocala briseis* Edw. Garden. July 31.

223. *Catocala unijuga* Wlk. Hog, Garden, Beaver. July 30–Sept. 13.

224. *Catocala concumbens* Wlk. High. Sept. 27.

225. *Catocala ultronia* Hbn. High. Aug. 11–Sept. 27.

226. *Parallelia bistriaris* Hbn. High, Beaver. June 23–24.

227. *Euclidia cuspidea* Hbn. Hog. May 27.

228. *Caenurgia erechtea* Cram. Gull, High. July 8–Aug. 10.

229. *Caenurgia crassiuscula* Haw. Beaver. August.

230. *Zale lunata* Dru. High. Sept. 27.

231. *Colocasia propinquilinea* Grt. Beaver. July 16.

232. *Panthea acronyctoides* Wlk. Beaver. July 17–30.

233. *Panthea furcilla* Pack. High, Beaver. July 17–24. Reared from larvae on white pine.

234. *Charadra deridens* Gn. Gull, Beaver. July 8–23.

235. *Autographa falcifera* Kirby. Whiskey, Hog, High. June 2–July 1.

236. *Autographa selecta* Wlk. Beaver. Aug. 26.

237. *Autographa rectangula* Kirby. Beaver. July 23–Aug. 19.

238. *Autographa putnami* Grt. Beaver. July 14–Sept. 17.

239. *Autographa precationis* Gn. High, Beaver. July 8–Sept. 17.

240. *Autographa bimaculata* Steph. Beaver. July 17–Aug. 12.

241. *Autographa ampla* Wlk. Beaver. July 14.

242. *Plusia aereoides* Grt. Beaver. July 23–Aug. 2.

243. *Plusia balluca* Geyer. Beaver. July 30.

244. *Palaeoplusia venusta* Wlk. High. Sept. 6.

245. *Raphia frater* Grt. High, Beaver. July 7–Aug. 23. Very abundant at light.

246. *Syneda alleni* Grt. High. June 20–July 12.

247. *Scoliopteryx libatrix* Linn. Beaver. Aug. 26.

248. *Alabama argillacea* Hbn. High, Beaver. Sept. 5–27.

249. *Rivula propinqualis* Gn. Beaver. July 16–Aug. 13.

250. *Pangrapta decoralis* Hbn. Beaver. July 20–28.

251. *Spargaloma sexpunctata* Grt. Beaver. July 14.

252. *Metalestra quadrisignata* Wlk. High, Beaver. June 21–Sept. 27.

253. *Epizeuxis americalis* Gn. High, Beaver. July 15–Sept. 7.

254. *Epizeuxis aemula* Hbn. High, Beaver. July 28–Aug. 3.

255. *Epizeuxis scobialis* Grt. Beaver. July 28.

256. *Epizeuxis rotundalis* Wlk. High, Beaver. July 27–Sept. 5.

257. *Epizeuxis lubricalis* Geyer. High, Beaver. July 21–Aug. 10.

258. *Zanclognatha theralis* Wlk. Garden, Beaver. July 28–Aug. 17.

259. *Zanclognatha laevigata* Grt. Garden. Aug. 3.

260. *Zanclognatha cruralis* Gn. High. June 20.

261. *Zanclognatha ochreipennis* Grt. High, Beaver. July 8–Aug. 11.

262. *Chytolita morbidalis* Gn. High. July 12–18.

263. *Chytolita petrealis* Grt. Gull, High, Beaver. June 18–July 20.

264. *Renia flavipunctalis* Geyer. High, Beaver. July 30–Sept. 3.

265. *Bleptina caradrinalis* Gn. High, Beaver. July 6–28.

266. *Phalaenophana pyramusalis* Wlk. Hat, Gull, High, Beaver. June 2–July 14.

267. *Palthis angualis* Hbn. Hog, High. June 23–July 28.

268. *Bomolocha baltimoralis* Gn. Beaver. July 8–Aug. 6.

269. *Bomolocha palparia* Wlk. Beaver. July 16–22.

270. *Bomolocha deceptalis* Wlk. High. June 22.

271. *Plathypena scabra* Fabr. Garden, High, Beaver. June 4–Sept. 8.

NOTODONTIDAE

272. *Ichthyura apicalis* Wlk. Beaver. June 16–July 1.

273. *Ichthyura strigosa* Grt. Beaver. July 7–8.

274. *Ichthyura albosigma* Fitch. Beaver. June 16–Aug. 20.

275. *Datana ministra* Dru. Beaver. July 8–22.

276. *Hyperaeschra stragula* Grt. Beaver. June 20–July 15.

277. *Odontosia elegans* Stkr. Beaver. July 1–8.

278. *Notodonta basitriens* Wlk. Beaver. July 1–23.

279. *Pheosia rimosa* Pack. Beaver. July 17–Aug. 26.

280. *Lophodonta ferruginea* Pack. Gull, Beaver. June 15–Aug. 5.

281. *Lophodonta angulosa* A. & S. Beaver. July 8–Aug. 2.

282. *Nadata gibbosa* A. & S. Beaver. July 1–23.

283. *Symmerista albifrons* A. & S. High, Beaver. June 25–July 30.

284. *Dasylophia thyatiroides* Wlk. Beaver. June 18–Aug. 5.

285. *Heterocampa umbrata* Wlk. Beaver. June 30–July 8.

286. *Heterocampa biundata* Wlk. Beaver. June 24–July 14.

287. *Heterocampa manteo* Dbldy. Hog. July 21.

288. *Ianassa lignicolor* Wlk. Beaver. July 8.

289. *Schizura ipomoeae* Dbldy. Beaver. Aug. 5.

290. *Schizura concinna* A. & S. High, Beaver. Reared from larvae on willow and apple.

291. *Schizura unicornis* A. & S. Beaver. June 16–Aug. 12.

292. *Schizura apicalis* G. & R. High. July 16.

293. *Cerura cinerea* Wlk. Beaver. July 8–Aug. 12.

294. *Cerura scolopendrina* Bdv. Beaver. Aug. 12.

295. *Gluphisia septentrionalis* Wlk. High, Beaver. June 15–Aug. 30.

296. *Gluphisia lintneri* Grt. Beaver. June 16.

THYATIRIDAE

297. *Habrosyne scripta* Gosse. Beaver. June 18–July 21.

298. *Habrosyne rectangulata* Ottol. Hog. From pupae.

299. *Pseudothyatira cymatophoroides* Gn. High, Beaver. June 25–July 30.

300. *Euthyatira pudens* Gn. High. June 7.

LYMANTRIIDAE

301. *Notolophus antiqua* Linn. Beaver. Sept. 5. Reared from larvae on gooseberry.

302. *Hemerocampa leucostigma* A. & S. High, Beaver. Aug. 8–Sept. 10. Reared from larvae on red dogwood.

LASIOCAMPIDAE

303. *Tolype laricis* Fitch. High, Beaver. Aug. 25–Sept. 19. Reared from larvae on white pine.

304. *Malacosoma americana* Fabr. High, Beaver. July 8–Aug. 5.

305. *Malacosoma disstria* Hbn. High, Beaver. July 16–28. Reared from larvae on oak.

306. *Epicnaptera americana* Harris. Beaver. June 4–18. Reared from larvae on oak and apple.

DREPANIDAE

307. *Drepana arcuata* Wlk. High, Beaver. July 8–Aug. 26.

308. *Drepana bilineata* Pack. Beaver. July 14.

GEOMETRIDAE

309. *Nemoria mimosaria* Gn. High, Beaver. June 4–July 22.

310. *Synchlora aerata* Fabr. High, Beaver. July 18–30.

311. *Chlorissa subcroceata* Wlk. High. June 22.

312. *Mesothea incertata* Wlk. Hog. May 25.

313. *Chlorochlamys chloroleucaria* Gn. High, Beaver. June 21–Aug. 20.

314. *Acidalia junctaria* Walker. High. July 12.

315. *Acidalia enucleata* Gn. High, Beaver. July 18–Aug. 6.

316. *Pleuropurcha insulsaria* Gn. Beaver. Sept. 4.

317. *Cosymbia lumenaria* Hbn. Beaver. June 15–Aug. 21.

318. *Trichodesia albovittata* Gn. Garden, High. May 26–July 24.

319. *Lobophora montanata* Pack. Beaver. June 16–July 8.

320. *Triphosa affirmaria* Wlk. Beaver. Aug. 6.

321. *Calocalpe undulata* Linn. High, Beaver. June 25–July 24.

322. *Lygris diversilineata* Hbn. Beaver. July 23–Sept. 3.

323. *Lygris testata* Linn. Beaver. Aug. 6–Sept. 9.

324. *Lygris explanata* Wlk. High, Beaver. Aug. 17–21.

325. *Diactinia silaceata albolineata* Pack. Beaver. June 24–Sept. 3.

326. *Thera contractata* Pack. Beaver. July 8–Sept. 16. Very abundant at light.

327. *Dysstroma truncata* Hufn. Beaver. Aug. 25–Sept. 15.

328. *Dysstroma hersiliata* Gn. Garden, High, Beaver. July 16–28.

329. *Hydriomena coerulata* Fabr. Hat, Hog. June 25–July 8.

330. *Hydriomena californiata* Pack. Beaver. June 16–July 7.

331. *Xanthorhoe lacustrata* Gn. High, Beaver. June 25–Sept. 3.

332. *Xanthorhoe designata* Hufn. High, Beaver. June 1–Aug. 13.

333. *Xanthorhoe convallaria* Gn. Beaver. July 16.

334. *Xanthorhoe iduata* Gn. High, Beaver. July 16–18.

335. *Orthonama obstipata* Fabr. High, Beaver. June 29–July 22.

336. *Spargania magnoliata* Gn. High, Beaver. June 14–Sept. 7.

337. *Euphyia intermediata* Gn. Beaver. Aug. 6. Determination somewhat doubtful.

338. *Euphyia centrostrigaria* Woll. Whiskey, Beaver. June 4–Aug. 19.

339. *Euphyia multiferata* Wlk. Beaver. July 10.

340. *Mesoleuca ruficillata* Gn. Garden, Beaver. June 11–July 15.

341. *Eulype hastata* Linn. Gull, Hog, Garden, High. May 17–June 22.

342. *Perizoma basaliata* Wlk. Beaver. Aug. 6–25.

343. *Hydrelia lucata* Gn. Beaver. July 7.

344. *Eudule mendica* Wlk. Garden, High, Beaver. June 20–Aug. 6.

345. *Eupithecia palpata* Pack. Beaver. July 1. Mr. Swett, who determined this specimen, states that it may possibly be *arpata* Pears.

346. *Eupithecia geminata* Pack. High, Beaver. Aug. 5–10. Determined by Swett.

347. *Eupithecia latipennis* Hulst. Beaver. June 16–July 1. Determined by Swett.

348. *Eupithecia interruptofasciata* Pack. Beaver, High. June 15–Sept. 19. Determined by Swett.

349. *Eupithecia fumata* Tayl. High. July 18. Determined by Swett, who states that this is the third or fourth specimen known of this rare species.

350. *Eupithecia anticaria* Wlk. Beaver. July 7.

351. *Eupithecia sp.* Beaver. June 15–16. Mr. Swett has retained the specimens for further study. He says it is close to *gibsonata* Tayl. or *taylorata* Swett, or may be an undescribed species.

352. *Horisme intestinata* Gn. Beaver. July 16–Aug. 4.

353. *Isturgia armitaria* Gn. Beaver. June 15.

354. *Bapta semiclarata* Wlk. Garden, High, Beaver. May 8–June 23. Reared from larvae on apple.

355. *Bapta vestaliata* Gn. High. June 17–July 7.

356. *Physostegania pustularia* Gn. High, Beaver. July 16–Sept. 3.

357. *Cabera variolaria* Gn. Garden, High, Beaver. June 11–July 28.

358. *Cabera erythemaria* Gn. High. June 21.

358. *Philobia aemulataria* Wlk. Garden, Beaver. June 11–July 8.

360. *Macaria minorata* Pack. Beaver. July 8–30.

361. *Macaria bisignata* Wlk. High, Beaver. June 16–Aug. 6.

362. *Macaria granitata* Gn. Hog, Garden, High, Beaver. June 11–Aug. 6.

363. *Phasiane neptaria trifasciata* Pack. Squaw, Hog. June 8–July 29.

364. *Phasiane orillata* Wlk. Beaver. July 1–16.

365. *Phasiane eremiata* Gn. High. July 18.

366. *Itame ribearia* Fitch. Beaver. Aug. 6.

367. *Itame inceptaria* Walker. Beaver. July 7–Aug. 5.

368. *Itame brunneata* Thun. Beaver. July 7–16.

369. *Itame bitactata* Wlk. Beaver. July 23–Aug. 6.

370. *Itame pustularia* Hbn. High, Beaver. June 3–July 16.

371. *Homochlodes fritilliaria* Gn. High, Beaver. June 15–July 10.

372. *Apaecasia subaequaria* Wlk. Garden, Beaver. May 27–July 2.

373. *Caripeta divisata* Wlk. High, Beaver. June 27–Aug. 13.

374. *Caripeta angustiorata* Wlk. Beaver. June 4–Aug. 5.

375. *Nepytia semiclusaria* Wlk. Beaver. Aug. 21–Sept. 17. Reared from larvae on white pine.

376. *Paraphia subatomaria* Wood. Beaver. July 20–Aug. 6. Determined by Forbes.

377. *Cleora indicataria* Wlk. High, Beaver. July 7–Sept. 3.

378. *Cleora pampinaria* Gn. High. June 21–July 12.

379. *Cleora larvaria* Gn. Beaver. Aug. 20.

380. *Melanolophia signataria* Wlk. High, Beaver. May 28–June 16.

381. *Ectropis crepuscularia* D. & S. Hog, High, Beaver. May 29–July 7.

382. *Amphidasis cognataria* Gn. High, Beaver. July 8–Aug. 9.

383. *Erannis tiliaria* Harris. Beaver. Oct. 6.

384. *Cingilia catenaria* Dru. Garden, High, Beaver. Sept. 6–27.

385. *Anagoga pulveraria* Linn. High, Beaver. June 2–25.

386. *Sicya macularia* Harris. Beaver. Aug. 1–28.

387. *Ellopia fiscellaria* Gn. Hog, High, Beaver. Sept. 2–Oct. 2. Reared from larvae on hemlock and balsam.

388. *Ennomos subsignarius* Hbn. High, Beaver. July 28–Aug. 31.

389. *Ennomos magnarius* Gn. Beaver. Sept. 24.

390. *Xanthotype crocataria* Fabr. High, Beaver. July 8–18.

391. *Plagodis approximaria* Dyar. Beaver. June 16–July 1.

392. *Hyperetis amicaria* H. S. Garden, High, Beaver. May 26–July 1.

393. *Nematocampa limbata* Haw. High, Beaver. July 29–Aug. 30.

394. *Gonodontis hypochraria* H. S. Garden, High. June 2–24.

395. *Gonodontis duaria* Gn. Garden, High. June 11–22.

396. *Euchlaena serrata* Dru. Beaver. July 30.
397. *Euchlaena effecta* Wlk. Beaver. July 10–Aug. 2.
398. *Euchlaena johnsonaria* Fitch. High, Beaver. July 1–23.
399. *Euchlaena astylusaria* Wlk. Beaver. July 18.
400. *Euchlaena marginata* Minot. Beaver. June 4.
401. *Metanema inatomaria* Gn. Beaver. June 16–Aug. 6.
402. *Metanema determinata* Wlk. Beaver. Aug. 6.
403. *Metanema quercivoraria* Gn. Beaver. July 23.
404. *Pero honestarius* Wlk. Beaver. June 16–July 8.
405. *Apicia confusaria* Hbn. Beaver. July 16.
406. *Apicia irraria* B. & McD. Beaver. July 16.
407. *Tetracis crocallata* Gn. Beaver. July 1–8.
408. *Sabulodes lorata* Grt. Hat, High, Beaver. June 18–July 8.
409. *Sabulodes transversata* Dru. High, Beaver. Aug. 14–Oct. 2.
410. *Abbottana clemataria* A. & S. High, Beaver. June 2–16.

EPIPLEMIDAE

411. *Callizzia amorata* Pack. Garden, Beaver. June 11–July 17.

LIMACODIDAE

412. *Lithacodes fasciola* H. S. Beaver. July 28–Aug. 5.
413. *Tortricidia testacea* Pack. High, Beaver, Hog. June 21—July 27.

PYRALIDAE

414. *Evergestis straminalis* Hbn. Beaver, High. June 21–Sept. 8.
415. *Nomophila noctuella* D. & S. High, Beaver. June 2–Aug. 13.
416. *Loxostege chortalis* Grt. High, Beaver. June 15–21.
417. *Loxostege sticticalis* Linn. Gull, High. May 31–June 25.
418. *Phlyctaenia ferrugalis* Hbn. High, Beaver. June 20–Oct. 2.
419. *Phlyctaenia extricalis* Gn. Beaver. Sept. 10.
420. *Phlyctaenia tertialis* Gn. Beaver. July 1–Aug. 3.
421. *Pyrausta pertextalis* Led. High. Aug. 4–Sept. 7.

422. *Pyrausta thestealis* Wlk. High, Beaver. July 23–Aug. 19.

423. *Pyrausta fodinalis* Led. Garden. July 30.

424. *Pyrausta signatalis* Wlk. High. Aug. 2.

425. *Pyrausta nicalis* Grt. High. June 25.

426. *Pyrausta funebris* Strom. Hat, Garden, High, Beaver. June 2–July 24.

427. *Nymphula maculalis* Clem. High. Aug. 22.

428. *Nymphula badiusalis* Wlk. Beaver. Aug. 19–Sept. 5.

429. *Nymphula icciusalis* Wlk. High, Beaver. July 18–Aug. 24.

430. *Nymphula ekthlipsis* Grt. High. July 18.

431. *Pyralis farinalis* Linn. High. June 14–Aug. 4.

432. *Herculia olinalis* Gn. Beaver. July 10–Aug. 20.

433. *Prionapteryx nebulifera* Steph. High. July 7–Aug. 2.

434. *Crambus hamellus* Thun. Beaver. Aug. 26.

435. *Crambus leachellus* Zinck. High, Beaver. Aug. 6–Sept. 19.

436. *Crambus dumetellus* Hbn. Beaver. Aug. 21.

437. *Crambus agitatellus* Clem. Gull. June 20.

438. *Crambus myellus* Hbn. High, Beaver. Aug. 17–31.

439. *Crambus hortuellus* Hbn. High, Beaver. July 1–Aug. 24.

440. *Crambus innotatellus* Wlk. High, Beaver. July 16–Aug. 5.

441. *Crambus vulgivagellus* Clem. High, Beaver. Aug. 23–Sept. 5.

442. *Crambus trisectus* Wlk. High, Beaver. June 20–Sept. 4.

443. *Thaumatopsis gibsonellus* Kearf. High, Beaver. Aug. 23–Sept. 6.

444. *Argyria auratella* Clem. High. July 12.

445. *Peoria approximella* Wlk. High. July 12–16.

PTEROPHORIDAE

446. *Oxyptilus tenuidactylus* Fitch. Beaver. July 15.

447. *Platyptilia pallidactyla* Haw. High, Beaver. June 18–25.

448. *Pterophorus inconditus* Walshm. High. June 13–17. Determination a little doubtful.

449. *Pterophorus kellicotti* Fish. High. June 25.

450. *Pterophorus monodactylus* Linn. High. June 27–July 6.

OECOPHORIDAE

451. *Depressaria heracliana* De G. Garden, High. June 2–Aug. 17. From pupa.

STENOMIDAE

452. *Stenoma schlaegeri* Zell. Beaver. July 10–14.

AEGERIIDAE

453. *Bembecia marginata* Harris. Beaver. Aug. 5–21.

454. *Synanthedon pictipes* G. & R. High. July 5. From pupa in cherry.

455. *Synanthedon acerni* Clem. Beaver. July 8–Aug. 2.

456. *Memythrus pyramidalis* Wlk. High. June 21–July 26.

EUCOSMIDAE

457. *Argyroploce capreana* Hbn. High, Beaver. Sept. 7–17.

458. *Argyroploce instrutana* Clem. High. Aug. 11.

459. *Eucosma dorsisignatana* Clem. Beaver. Sept. 10.

460. *Ancylis burgessiana* Zell. Beaver. June 15.

TORTRICIDAE

461. *Sparganothis pettitana* Rob. High. July 16–18.

462. *Sparganothis reticulatana* Clem. High, Beaver. Aug. 4–19.

463. *Sparganothis lycopodiana* Kearf. Hog, Beaver. July 27–Aug. 30.

464. *Cacoecia dissitana* Grt. Beaver. July 10–Aug. 13.

465. *Cacoecia persicana* Fitch. Beaver. July 8.

466. *Cacoecia cerasivorana* Fitch. High. July 27–Aug. 8. Reared from larva on choke-cherry.

467. *Cacoecia argyrospila* Wlk. High, Beaver. June 28–Aug. 6.

468. *Cacoecia melaleucana* Wlk. High. June 21.
469. *Cacoecia purpurana* Clem. High, Beaver. July 18–Aug. 6.
470. *Cacoecia rosaceana* Harris. Beaver. July 28.
471. *Argyrotoxa bergmanniana* Linn. Beaver. Aug. 6.
472. *Peronea comandrana* Fern. High. June 2.

COSSIDAE

473. *Acossus centerensis* Lint. Beaver. July 8–Aug. 5.

HEPIALIDAE

474. *Hepialus hyperboreus* Moesch. Beaver. Aug. 2.

Added Species

475. *Euxoa mimallonis* Grt. High. Aug. 23.
476. *Diathraustra reconditalis* Wlk. Beaver. Aug. 3.
477. *Psectraglaea carnosa* Grt. Beaver. Oct. 2.
478. *Oligia minuscula* Morr. Beaver. Oct. 2.

Summary

PAPILIONOIDEA		
Papilionidae	1	
Pieridae	4	
Danaidae	1	
Satyridae	3	
Nymphalidae	18	
Lycaenidae	9	
Hesperiidae	9	45
SPHINGOIDEA		
Sphingidae	12	12
SATURNIOIDEA		
Saturnidae	2	
Ceratocampidae	1	3

BOMBYCOIDEA

Syntomidae	2	
Arctiidae	19	
Agaristidae	2	
Noctuidae	191	
Notodontidae	25	
Thyatiridae	4	
Lymantriidae	2	
Lasiocampidae	4	
Drepanidae	2	
Geometridae	102	
Epiplemidae	1	354

TINEOIDEA

Limacodidae	2	
Pyralidae	33	
Pterophoridae	5	
Oecophoridae	1	
Stenomidae	1	
Aegeriidae	4	
Eucosmidae	4	
Tortricidae	12	
Cossidae	1	
Hepialidae	1	64

Total Species 478